Team Project Proposal

05 September 2025

Course Name and Number : Advance Software Engineering COSC-6370-001

Proposal Date : 09/02/2025

Team Name : Code Gems

Application Name : SmartAssist – Campus Services Assistant

Team Members : Manmeet Detroja, Margesh Vyas, Fenil Khunt, Shubh Rana, Shubham Patel, Mahip Patel, Smit Tejani.

Note. One team member may assume multiple roles except the project manager and the technical manager. The project member roles are explained at the end of this document. Please review the roles and related responsibilities before assigning project roles. **Complete the table at the end for the roles.**

Note that the project team member roles do not include a role such as "Project/Software Developer". This is because all team members are inherently assumed to be developers in the project. As a project developer, each team member is assumed to have the responsibility for completing the assigned parts of the documents, implementing 1-2 application features, coding 2-4 software modules, writing 1-2 use cases, and writing 1-2 test cases.

Application Description :

Application Description: SmartAssist is a campus services assistant designed to enhance student support and service delivery at our TAMUCC. The application provides students with a single entry point for obtaining answers to common campus questions, submitting service requests, scheduling appointments, and tracking the status of their interactions. Using an intelligent knowledge base and AI-powered chatbot, SmartAssist enables students to find answers anytime, anywhere. When self-service isn't enough, the system routes requests to the appropriate department via a ticketing system, ensuring that issues are resolved promptly.

SmartAssist emphasises convenience and accessibility. Students can schedule appointments with advisors or services directly through the platform and receive notifications about their requests. A responsive web interface ensure that the platform might available on multiple platforms. By centralising support interactions, SmartAssist helps departments collaborate more effectively and promotes a customer-centric service culture.

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It also helps students, faculty, and visitors easily find **professor offices, classrooms, labs, and campus buildings**.
When asked, "Where is Prof. Smith's office?" or "How do I get to the Computer Science building?", the assistant provides:

- Room number
- Building name

This eliminates confusion, reduces dependency on front-desk staff, and enhances campus experience.

Application Customers / Users :

- **Primary users:** Students who need answers about admissions, advising, financial aid, IT support, library services, or other campus functions. They benefit from 24/7 access to an intelligent knowledge base and self-service options. - **Secondary users:** Departmental staff and advisors who manage requests. A centralised service desk improves collaboration and reduces average ticket resolution time. Administrators gain analytics on common issues, allowing them to improve services.

Application Goals :

1. Provide 24/7 access to a comprehensive knowledge base so that at least 60 % of student queries are resolved through self-service without staff intervention.

2. Implement an organised ticketing and appointment scheduling system that reduces average issue resolution time by 30 %.

3. Deliver a mobile-friendly interface that meets accessibility standards, allowing students to access services on the go.

4. Provide analytics and reporting dashboards for staff to identify common requests and monitor service performance also Collect user feedback and ratings to continuously improve service quality.

5. Single web interface – available via university portal, accessible on any device browser.

6. Provide **real-time location guidance** for professors, classrooms, labs, and facilities.

7. Reduce **front-desk inquiries** by automating repetitive location-based questions.

8. Enhance **user convenience** with natural language query handling.

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Main Application Features :

1. **Intelligent knowledge base and FAQs:** A searchable database of articles, FAQs, guides, and step-by-step instructions accessible 24/7.

2. **AI-powered chatbot and live chat:** An AI chatbot handles routine questions and guides students through self-service tasks, escalating to live chat with staff when necessary.

3. **Service request and ticket management:**A unified ticketing system allows students to submit requests and track their status in real tim.

4. **Appointment scheduling:** Students can schedule or reschedule appointments with advisors or service offices.
5. **Mobile portal and responsive design:** A web portal provide consistent experiences across devices.
6. **User feedback and surveys:** Built-in polls and rating tools let students evaluate services, providing data for continuous improvement.
7. **Analytics and reporting:** Dashboards show metrics like ticket volume, resolution time, and knowledge base usage, helping staff make data-driven decisions.
8. **Community forum (optional):** A peer-to-peer forum fosters collaboration and peer support.
9. **Web-based Chat Assistant – embedded in the campus website.**
10. **LLM + RAG – retrieves professor details and building info from the campus database.**
11. **Admin Portal – allows staff to update professor offices, classroom changes, event venues.**
12. **Search Filters – find by professor name, department, or building.**

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Project Role	Team Member Name	Responsibilities
Project/Software Developer	Manmeet Detroja, Mahip Patel, Smit Tejani, Shubham Patel, Fenil Khunt, Margesh Vyas, Shubh Rana	Implement chatbot features (UI, RAG pipeline, map integration). Code 2–4 software modules (frontend React components, backend APIs, DB integration) Write 1–3 use cases (e.g., "Where is Prof. X's office?"). Write 1–3 test cases (chat response validation, map directions). Participate in meetings & complete assigned documentation.
Project Manager	Manmeet R Detroja	Manage project timeline, tasks, and team coordination Ensure delivery of chatbot, web interface, and documentation H andle communication with professor/university stakeholders. Submit final proj artifacts (docs, code, deployment)
Project Technical Manager	Smit Tejani	- Oversee AI integration (LLM + RAG pipeline) - Ensure proper backend architecture and scalability - Guide database schema for professor/building info - Coordinate frontend–backend–map integration
Project Requirements Manager	Mahip Patel	- Collect requirements (professor offices, building list, map data) - Document use cases & system requirements - Ensure chatbot responses align with actual campus data - Map requirements to test cases
Project Design Manager	Margesh Vyas	- Design system architecture (web frontend, backend, database, AI pipeline) - Create UI/UX flow for chatbot + map - Ensure design is user-friendly and meets quality goals - Prototype campus map integration
Project Test Manager	Shubh Rana	- Define test strategy (unit, integration, system tests) - Validate chatbot accuracy and itinerary correctness - Conduct user testing (students/faculty) - Track bugs and generate test reports
Project Configuration Manager	Fenil Prafulbhai Khunt	- Set up GitHub/GitLab repo for version control - Configure dev/staging/production environments - Manage API keys (LLM, Maps) - Handle deployment (Docker/AWS or similar)

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Project Quality Assurance Manager	Shubham Patel	- Review documents & code for consistency and quality - Ensure chatbot answers are correct and reliable - Enforce project standards across design, requirements, and testing - Manage change requests and improvements